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(54) **METHOD AND APPARATUS FOR  
MANAGING A STORAGE SYSTEM USING  
SNAPSHOT COPY OPERATIONS WITH  
SNAP GROUPS**

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(57) **ABSTRACT**

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A method and apparatus in a data processing system for  
managing data access to a plurality of storage devices. The  
present invention may be applied to copy operations involv-  
ing virtual tracking. The plurality of storage devices is  
grouped into a set of groups. Responsive to a request for a  
copy operation to copy data from a first storage device to a  
second storage device, a determination is then made as to  
whether the first storage device and the second storage  
device are in the same group within the plurality of groups.  
Responsive to the first storage device and the second storage  
device being in the same group, a data file pointer to the  
original data is stored in a data structure for the second  
storage device. Responsive to an absence of the first storage  
device and the second storage device being in the same  
group, occurrence of the copy operation is prevented.

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(52) **U.S. Cl.** ..... 711/162; 711/111; 711/112;  
711/114; 711/152; 711/161; 707/204

(58) **Field of Search** ..... 711/4, 111, 112,  
711/114, 152, 161, 162, 163; 707/204

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39 Claims, 10 Drawing Sheets

